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SECRETARY'S MINUTES

FORTY-SIXTH ANNUAL MEETING, KANSAS ACADEMY OF SCIENCE.

J. T. LOVEWELL, Ph. D., *Secretary.*

BALDWIN, KAN., Friday, Dec. 26, 1913.

The Academy met for its forty-sixth annual meeting at Baldwin, Kan., in Science Hall of Baker University, and having come to order, the president, A. J. Smith, called for the secretary's report of the last meeting of the Academy. This report having been published in the last volume of the Transactions, its reading was dispensed with, and the president announced the standing committees of the present meeting as follows:

Program: Dains, Wooster, Harshbarger.

Press: Sayre, Groner, Cook.

Audit: Shirk, Knaus.

Membership: Agrelius, Knaus, Mrs. Smyth.

Time and Place: Havenhill, Miss Anderson, Randall.

Nominations: Bailey, Wooster, McWharf.

Resolutions: McWharf, Sterling.

The treasurer's report, as given below, was read; from which it appeared that there is a balance in the treasury of \$900.62. This report was referred to and approved by the auditing committee, and adopted by the Academy.

Treasurer's Report to the Kansas Academy of Science, Dec. 26, 1913.

RECEIPTS:

Dues	\$82.00	
Sale of Transactions	2.08	
Interest on deposits	25.17	
Total		\$109.25
Balance from 1912		818.68
Total receipts		<u>\$927.93</u>

DISBURSEMENTS:

Expenses, Publication Committee	\$7.57	
Expenses Executive Committee	4.24	
New York Botanical Gardens	3.00	
Standard Encyclopedia	12.50	
Total		<u>27.31</u>

Total cash on hand Dec. 26, 1913 \$900.62

Signed, L. D. HAVENHILL, *Treasurer.*

Approved December 26, 1913. J. A. G. SHIRK,
W. KNAUS,
Auditing Committee.

TITLES OF PAPERS.

Following are the titles of papers in the order received by the Secretary. The time of reading will be announced by Program Committee.

1. An Experiment in Irrigation. A. A. Graham, Topeka.
 2. Frying Eggs in the Sun. A. A. Graham, Topeka.
 3. How to Keep Cool. A. A. Graham, Topeka.
 4. How to Scratch. A. A. Graham, Topeka.
 5. How to Relieve Stomach-burn. A. A. Graham, Topeka.
 6. Phenomena Beautiful. W. A. Cook, Baldwin.
 7. Lowering of the Ground-water Level. W. A. Cook, Baldwin.
 8. A Graphic Method of Determining Food Values for Different Food-stuffs. D. L. Randall, Baldwin.
 9. On Ammonium Molybdate. D. L. Randall, Baldwin.
 10. An Exhibition of Folley's Photographs of Sound Waves. S. A. Deel, Baldwin.
 11. A Description of the New Waterworks for Baldwin City. S. A. Deel, Baldwin.
 12. Some of the Exhibits in the University Museum. C. S. Parmenter, Baldwin.
 13. Improvement in the Commercial Supply of Spices and the Cause for the same. L. E. Sayre, Lawrence.
 14. Corn Oil as a Substitute for Olive Oil and Cottonseed Oil in Certain Preparations. L. E. Sayre, Lawrence.
 15. Glacial Epoch: A Discussion of Theories of Scientists—What Are the Critical Periods of the Earth, and Why Do They Occur? A. B. Reagan, Orr, Minn.
 16. A New Automatic Electric Bell System. J. A. G. Shirk, Pittsburg.
 17. On Some Thiohydantoin Derivatives. F. B. Dains and A. E. Stevenson, Lawrence.
 18. The Action of Acid Reagents on Substituted Ureas. F. B. Dains and R. C. Roberts, Lawrence.
 19. "Witching" for Water and Other Substances. J. T. Lovewell, Topeka.
 20. Determination and Records of Insects Collected at Plano, Tex. E. S. Tucker, Baton Rouge, La.
 21. Progress in Power Development in the Last Decade. F. E. Sibley, Lawrence.
 22. Flora of Kansas—Part III. L. C. R. Smyth, Topeka.
 23. Vocational Education in Kansas. Dean P. F. Walker, School of Engineering, University of Kansas.
 24. Osmosis as a Chemical Phenomenon. Prof. C. F. Nelson, University of Kansas.
 25. The Source of Food Supplies. Prof. E. H. S. Bailey, University of Kansas.
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26. Animal Life in Puget Sound. W. J. Baumgartner, University of Kansas.
 27. The Composition of Natural Gas Occurring near Junction City, Kansas. H. H. King, Manhattan.
 28. Insects in Western Kansas. W. Knaus, McPherson.
 29. Insects Among the Sand Hills. W. Knaus, McPherson.
 30. Geological Development of Kansas. L. C. Wooster, Emporia.
 31. Determination of Acetic Acid in Vinegar. Miss Anderson, Lawrence.
 32. Weed Seed. L. D. Havenhill, Lawrence.
 33. Preservation of the Rocky Mountain Sheep. Mr. Walworth.
 34. Acidity in Wheat Flour. Its Relation to Phosphorus and Other Constituents. C. C. Swenson, Manhattan.
 35. Preliminary Study of the Conditions which Affect the Analytic Enzymes in Wheat Flour. C. C. Swenson, Manhattan.
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Professor Sayre called attention to the importance of a strong legislative committee who should also look after the Academy's interests in the Memorial Building. On motion, Sayre, Bailey, and Knaus were appointed as such committee. A lecture on University Extension was next given by Professor Croissant, and on motion of Professor Sayre the secretary was requested to prepare a report of this lecture to publish in the Transactions.

The Academy next proceeded to the reading and discussion of papers. The Program Committee selected from the published numerical list of titles the following papers, which were next read and discussed: Nos. 7, 8, 9, 10, 13, 14, 17, 18, 25, 28, 29, 31, and 35.

The reading of these papers introduced some interesting discussion, which was enjoyed and occupied the Academy till time to adjourn for the evening session.

EVENING SESSION.

The address of the retiring President, A. J. Smith, was read by its author, and then followed a lecture on The Early History of Explosives, by Dr. F. B. Dains. This was historical, and was illustrated by many lantern projections showing how the old methods of hurling projectiles had been supplanted by the use of gunpowder. President Smith's subject was Progress in Sanitary Engineering Practice. Both of these able productions were listened to with marked interest.

Professor Randall announced that a stenographer had been secured, who would be on hand in the morning to make a full

record of discussions on the papers. The session adjourned till 9 o'clock to-morrow morning.

When the Academy assembled at the appointed hour the Committee on Time and Place announced that Topeka would be the place of our next meeting, and the time would be determined after the question had been settled whether the Academy should merge with the Engineers. Professor Willard, taking up the discussion of this report, thought this was a matter of great importance. First, while there are ten times as many people engaged in scientific work as there were thirty years ago our membership has not correspondingly increased. Why are they not here? The dates of our meetings must be arranged so that they can come. Running around over the state is not conducive to the strongest membership. We must bring younger people into our meetings. There is a tendency to specialization. Our institutions have science clubs, but there is never a time when all departments of science are represented. We do not come here mainly to hear and read papers, but primarily to get acquainted. The most important thing now is to secure a good meeting at Topeka next year.

Professor Wooster thought that while this is an age of specialization we can't be good specialists unless we keep in touch with the rest of the world. There are general phases in the work which affect each one of us. Authors of papers should prepare abstracts giving the points which are of interest to all of us. Most of us would like to have our papers published immediately. The time before they appear in the Transactions is too long. In regard to time it would be better to get away from the holiday season. We should have a time when we can have excursions. Professor Dains thought Topeka the most satisfactory place to meet, and we must make vigorous effort to get people out.

Professor Shirk is very much interested in the proposed union with the Engineers, and said they would like the date of the annual meeting sometime in February. The holiday season is not the best time for all concerned. Each of the different sections must have some one to push it. Professor Cook thinks the holiday season is bad for then is the time when people go visiting. It is too near the time of other important meetings which many of us wish to attend. President Smith said that from the discussion we can get an idea of the sentiment. It is impossible to arrange a time that will suit every

one, and each will find it necessary to make sacrifices. Professor Bailey presented the following report from the committee on the proposed merger with the Engineers, which, on motion, was adopted:

REPORT OF COMMITTEE ON A MERGER WITH THE KANSAS
ENGINEERING SOCIETY.

Your committee, in considering the question of a possible merger with the Kansas Engineering Society, would recommend:

1. That the present funds of the Academy, including the receipts of the current year, be set aside as a fund in trust for the following specific purposes:

- a. Necessary additional furniture for rooms.
- b. Additions to library.
- c. Publicity for the Academy.
- d. Procuring speaker for Memorial Hall dedication.
- e. Other necessary expenses for the furthering of the objects of the Academy as it now exists.

2. We further recommend that a bonded trustee be appointed, who, in conjunction with the president, secretary and treasurer, shall be charged with the expenditures of this fund, as above indicated.

3. We further recommend that on the completion of this merger a new general fund be created for the joint benefit of the merged societies, if effected, consisting of the two affiliated organizations.

4. That we instruct the Executive Council to take all necessary steps toward furthering this merger, to bring about the broader usefulness of this Academy.

5. That if the Engineering Society desires to merge with the Academy of Science, we instruct the Executive Council to extend to it an invitation on the above conditions.

6. We recommend the appointment of a committee of three on publicity, of which Secretary Lovewell shall be one, whose duty it shall be to promote the interests of the Academy by publicity, and that the sum of \$50 be appropriated for the purposes of the committee.

(Signed) L. E. SAYRE.
W. KNAUS.
E. H. S. BAILEY.

Secretary Lovewell read the report of the Committee on Merger made at the meeting one year ago.

P. F. WALKER: I make a motion that a committee be appointed to consider the questions which have been discussed here this morning, and to report this afternoon; the committee to be appointed by the chair.

The motion was seconded and carried.

Committee appointed: P. F. Walker, J. T. Willard, J. A. G. Shirk.

E. H. S. Bailey presented the report for the Committee on Dedication of Memorial Hall.

A motion to adopt the report was made and seconded.

DISCUSSION.

SECRETARY LOVEWELL: In regard to name of the speaker: We have two distinguished members of the Academy, Doctor Wilson and Doctor Nichols, either of whom would be desirable. I must say that I prefer the selection of the committee. If Doctor Nichols should be selected I do not believe we could do better.

The question was put and carried.

SECRETARY LOVEWELL: Report on obituaries: I have previously reported four, and there is nothing further to report.

Report of Nominating Committee:

Officers: President, W. A. Harshbarger, Topeka; first vice president, J. A. G. Shirk, Pittsburg; second vice president, J. E. Todd; treasurer, L. D. Havenhill, Lawrence; secretary, J. T. Lovewell, Topeka.

Additional members of Executive Council: E. H. S. Bailey, F. B. Dains, L. C. Wooster, J. T. Willard.

Motion was made to accept the report of this committee. Seconded. Carried.

Motion was made that the secretary be instructed to cast a ballot for these candidates. Seconded. Carried. Secretary was so instructed and reported the ballot cast and the officers and members of the Executive Council duly elected.

L. E. Sayre read report on Publicity, for Committee on Publicity. Motion made to adopt report. Carried.

There being no further business before the meeting, the time was given to the reading and discussion of papers as follows:

Paper No. 36, Weed Seed, by L. D. Havenhill, Lawrence.

Exhibits were presented and a few questions asked.

Paper No. 11, A Description of the New Waterworks for Baldwin City, by S. A. Deel, Baldwin.

Charts were used for this, and the paper was followed by discussions as to the permanency of the water supply.

J. T. WILLARD: I am of the opinion that there will be very little let up of the water supply.

J. A. G. SHIRK: We have been doing a little figuring, and estimate that the rainfall averages about three million gallons per day for the year, on the area described.

E. H. S. BAILEY: In regard to the quality, this is one of the very best waters in the state. There are very few localities where we have this sandstone water, and sandstone water is especially good. In regard to the drainage area, are there many farms?

S. A. DEEL: There are nine farms, but only one that would be at all dangerous because of drainage.

PRESIDENT SMITH: I believe that the arrangement will fail after a few years. It is not to be supposed that this 1300 acres is all going to take up rain water and that all the rain water which it does take up will run down to the filter wells. When the water that is already stored in the sandstone is drawn out the supply is going to fail.

W. A. COOK: Indications are that the land all drains through a point where the filter galleries are located.

PRESIDENT SMITH: From other experiments in other places, notably in California, such supplies always fail.

Paper No. 10, An Exhibition of Folley's Photographs of Sound Waves, by S. A. Deel, Baldwin.

This was given with the lantern, and no discussion followed.

Motion was made to fix the time of adjournment at 12:30, which was carried.

Motion was made to present papers by authors not present by title and refer to Committee on Publication.

Paper No. 6, Phenomena Beautiful, by W. A. Cook, Baldwin.

DISCUSSION.

L. E. SAYRE: The speaker has been able to see thirty miles in the distance. I should like to ask whether on shipboard, for example, where you have no obstruction, is not the range of vision about fifteen miles? Ordinarily it is impossible to see beyond fifteen miles. The distance in this case is doubled. This is due, of course, to the refraction.

F. E. SIBLEY: From the shore of Lake Erie I have been able to see a town sixty miles away across the lake, the city appearing upside down.

MISS MEEKER: Asks as to time of year affecting the mirage.

W. A. COOK: They may be seen at all times of the year.

J. A. G. SHIRK: In Texas and eastern New Mexico, in the middle of the summer after a heavy rainfall when the low places are filled with water, it is hard to tell the mirages from the real pools.

———: In Arizona I have seen lakes of water reflected from at least twenty-five to thirty miles from the Colorado river, or it may have been a reflection from Salton Sea. In regard to this halo about the moon, I made a diagram of the phenomena as I saw it, only I think it was a halo around the sun instead of the moon. There was a large halo, with smaller halos on each side.

PRESIDENT SMITH: In regard to Salton Sea, I have also seen this phenomenon. When we finally came to the sea itself it looked just as it had looked in the mirage. We could not tell which was which until we got within about one hundred feet of it.

Paper No. 27, The Composition of Natural Gas Occurring Near Junction City, Kan., by H. H. King, Manhattan.

DISCUSSION.

F. B. DAINS: Asks concerning amount of carbon dioxide in the three samples. (Mr. King reports same in all three.)

E. H. S. BAILEY: The percentage of methylene is remarkably low. The percentage of nitrogen is high. From analysis obtained in the South we find that the illuminating percentage of methylene is gradually diminishing. The oxygen does not increase. CO₂ increases.

MINUTES FOR AFTERNOON SESSION.

DECEMBER 27, 1913.

Session opened at 1:45 by Pres. A. J. Smith.

P. F. Walker offers resolution on organization.

Motion made and seconded to adopt. Carried.

DISCUSSION.

Mr. WALKER: This was not arranged especially in the interest of chemists and physicists. We have intended that this resolution should be entirely general, with the provision that there will be at least one general session of the Academy.

E. H. S. BAILEY: Does this contemplate having a separate chairman for each division?

Mr. WALKER: It does.

Mr. BAILEY: I think this will stimulate the men in the different lines to write papers and take an interest in the meeting. If we can in this way concentrate the efforts I think it will advance the interests of the Academy very much.

Question put, and carried.

The following papers were presented by title:

No. 15, Glacial Epoch: A Discussion of Theories of Scientists—What are the Critical Periods of the Earth, and Why do They Occur? by A. B. Reagan, Orr, Minn.

No. 20, Determinations and Records of Insects Collected at Plano, Tex. E. S. Tucker, Baton Rouge, La.

No. 24, Osmosis as a Chemical Phenomenon. Prof. C. F. Nelson, University of Kansas.

No. 26. Animal Life in Puget Sound. W. J. Baumgartner, University of Kansas.

Motion made by P. F. Walker that a committee be appointed by the president, of which the retiring president be the chairman, to confer with the Engineering Society at their next meeting and discuss with them plans for the affiliation of their society with the Academy of Science.

Seconded. Carried.

Committee appointed: A. J. Smith, W. A. Harshbarger, P. F. Walker.

Membership Committee reports two names. Motion made to accept report and that the secretary be instructed to cast a ballot for the new members. The secretary reported ballot cast and new members duly elected.

L. C. Wooster raises a question as to those who do not pay their membership dues.

Secretary LOVEWELL: All those who have not paid their dues have been and will be notified. Some pay and some do not pay. In regard to that matter I will say that the dues are payable in advance at the beginning of each year, but it has been the custom recently for a good many to postpone payment of dues until the end of the year. I think that is the practice of the majority at this time. There is a ruling under which I do not send out the Transactions to those who have not paid. The members of the Academy not paying their dues will not receive a copy of the reports. The paper-covered reports were sent to all members, but the cloth-covered volumes will not be sent to those who have not paid their dues. There is another ruling in regard to the proceedings of the annual meeting, and that is that abstracts be presented of all papers, but that rule has not been followed.

L. E. Sayre moved that the action of the secretary be approved.

Seconded. Carried.

Paper 23, Vocational Education in Kansas, by P. F. Walker, School of Engineering, University of Kansas.

Discussion omitted because of lack of time.

Paper 38, The Preservation of the Rocky Mountain Sheep, by Mr. Walworth.

Paper 21, Progress in Power Development in the Last Decade, by F. E. Sibley, Lawrence.

Mr. Sibley concluded his paper by stating: "It is not a question of what shall we do for power, but will we have brains enough to develop the power we have.

Paper 19, "Witching" for Water and Other Substances, by J. T. Lovewell, Topeka.

DISCUSSION.

Mr. LOVEWELL: There has been considerable investigation made and the conclusion has been that when the experiments were properly conducted there was nothing to warrant us to believe that there was any divination to locate water. The experiment shows that people are predisposed to accept things as proved which are not proved, which are really mere chance. Some claim that the method will not answer unless there is a stream of water, not merely the water in the strata. If the water has an affinity for the twig, how about snow? It is claimed that it applies just as well then as at any time. But the question is, does it

apply at any time? I think we shall find it is on a par with table tipping, the clairvoyant, and others of the same nature. There is a great deal of superstition in the human mind that likes to explain things by applying some mysterious force. There is much to be said, which I hardly consider worth the consideration of a scientific body, only that so many people believe it.

S. A. DEEL: The value given for methylene is 45 pounds per cubic foot, according to the Smithsonian report. We find the gas in the pipes here is much heavier, running about 47 pounds per cubic foot.

E. H. S. BAILEY: It is repeatedly asserted that air is mixed with the gas, but from repeated analyses this has not been found so.

P. F. WALKER: With the existing rock pressure on the gas as it comes from the ground, it would be more expensive for the gas companies to pump air into the pipes than to use the gas, and also very dangerous.

Motion made that when we adjourn, we adjourn to 1:45 P. M., and to fix the hour for adjourning the afternoon session at 3:45. Carried.

The Committee on Membership reported the following applications and moved that they be admitted to membership:

H. A. Horton, entomologist, McPherson College.

Miss Agnes Anderson, chemist, Lawrence.

J. Risser, zoölogist, Washburn College, Topeka.

Eugene G. Smyth, entomologist, Ensenada, Porto Rico (for life member).

Henry L. Viereck, entomologist, Lawrence, Kan.

Bennet M. Allen, professor of zoölogy, Lawrence, Kan.

Laurance A. Walworth, taxidermist, Baldwin, Kan.

S. A. Deel, professor of physics, Baker University, Baldwin.

C. F. Nelson, physiological chemist, Lawrence.

L. T. Reser, professor of botany, Baker University, Baldwin.

On motion, the rules were suspended and the secretary requested to cast the ballot admitting to membership the persons above named. The secretary reported the ballot cast and motion carried.

RESOLUTION ON ORGANIZATION.

Resolved, That in order to advance the work of the Academy and promote the active interest of science workers in specialized lines, sections in various branches be formed from among the membership, the basis for such organization being as follows:

1. A section may be formed when not less than eight members so request.

2. Papers which bear directly upon the line of work represented by any section shall, at the option of the Executive Council, be presented before that section; provision for the separate section meetings to be made at each regular meeting of the Academy.

3. Each section shall elect its chairman, who shall be a vice president of the Academy, and other officers as it may desire.

4. Each section is expected to make special effort to secure papers for its own meeting.

5. Each section may take such action as it may see fit to raise funds to further its own work, this to be in addition to the regular dues of the Academy.

6. These provisions contemplate the holding of at least one general session for the reading of papers of general interest at each annual meeting of the Academy.

Submitted by: P. F. WALKER.
 J. T. WILLARD.
 J. A. G. SHIRK.

Adopted.

President Smith appointed as a Committee on Publicity, in accordance with the report of the Committee on Merger, J. T. Lovewell, L. E. Sayre, W. A. Harshbarger.

Paper 28, Sandhill Collecting in Coleoptera in Reno county, by W. Knauss, McPherson.

DISCUSSION (general on last four papers).

MR. WOOSTER: Estimates made concerning rainfall show that there is $37\frac{1}{2}$ cubic miles each year, on an average. One-half of that flies off in evaporation. One-third runs off and comes out as springs. One-sixth, only, soaks in. So of that three million gallons, only about 500,000 gallons soak in. There are under Kansas about forty years of rainfall, and from that you can figure your water supply.

P. F. Walker moved that the Executive Council be given power to make such expenditures as appear to be necessary for the proper furnishing of the rooms in the new building at Topeka.

Seconded. Carried.

Secretary Lovewell was instructed by the Academy to look after the wiring in the new building for the use of a lantern.

Meeting was adjourned to meet at time and place as arranged by Executive Council.